Cloud Management with OpenStack

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Overview
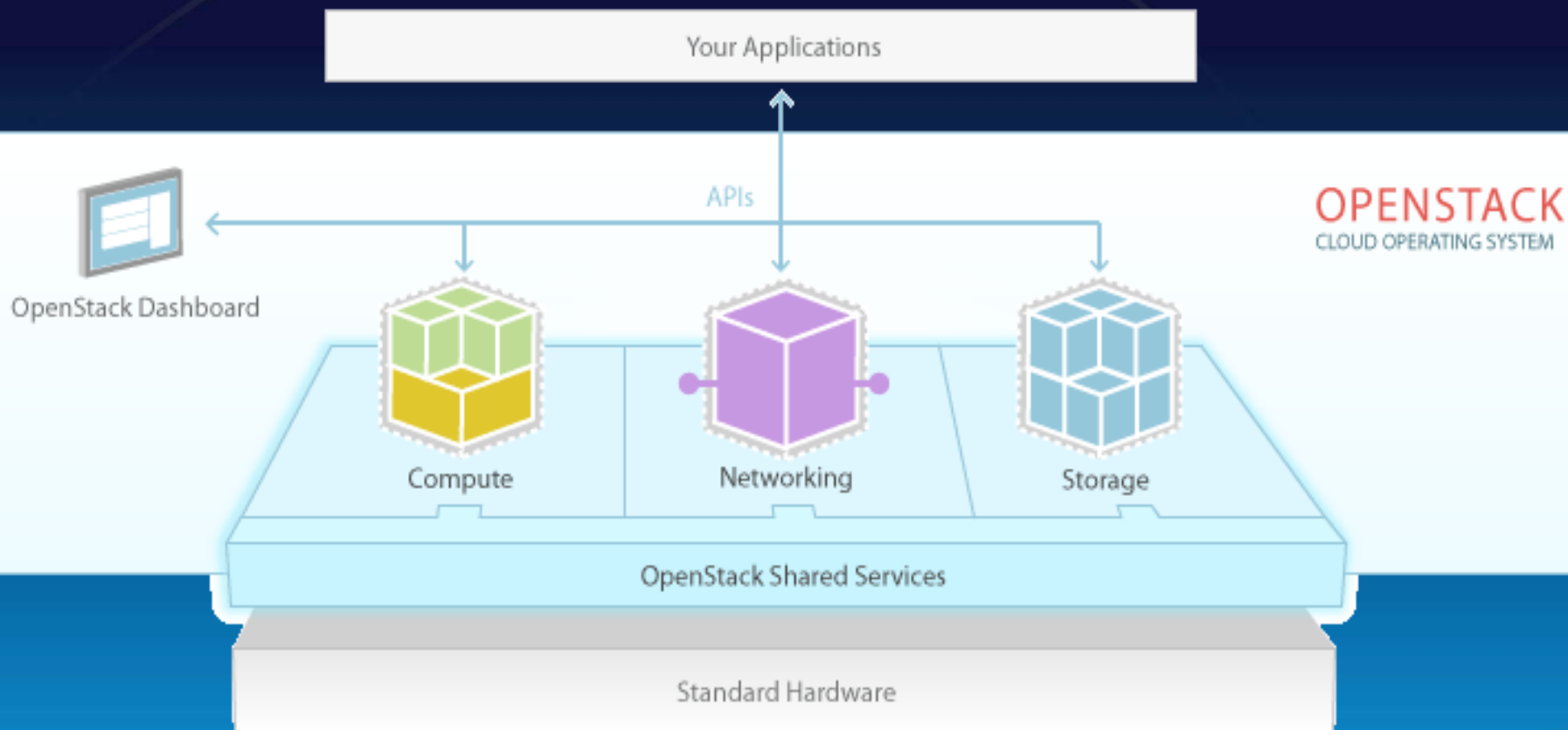
- What is OpenStack

- Networking, storage, compute

- Benchmarking
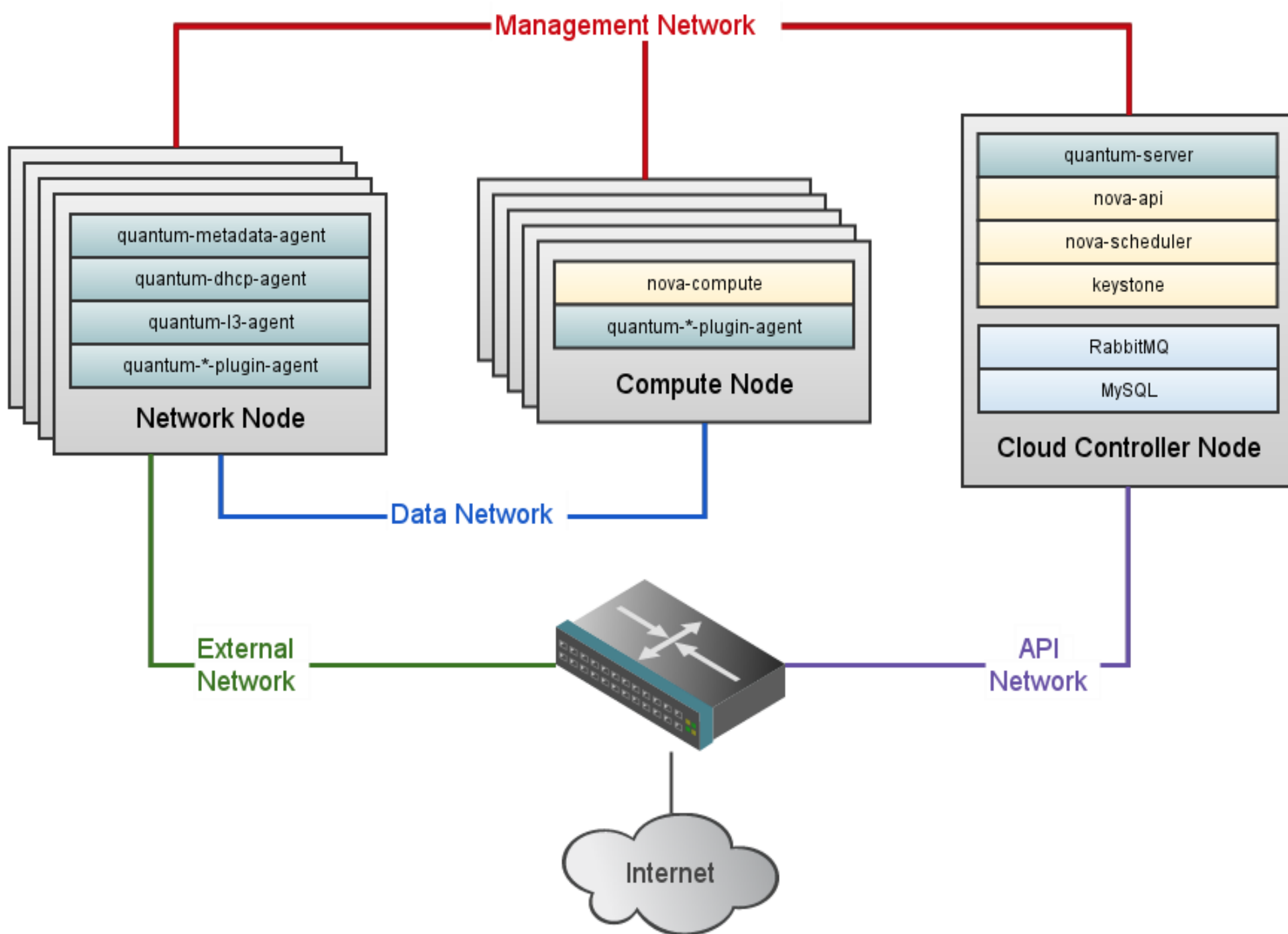
- Results

- Future work

- Lessons Learned

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OpenStack Cloud

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Management Network

Network Node
- quantum-metadata-agent
- quantum-dhcp-agent
- quantum-l3-agent
- quantum-*-plugin-agent

Compute Node
- nova-compute
- quantum-*-plugin-agent

Cloud Controller Node
- quantum-server
- nova-api
- nova-scheduler
- keystone
- RabbitMQ
- MySQL

Data Network

External Network

API Network

Internet

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openstack
DASHBOARD

All Instances

Project | Admin

System Panel

Overview

Instances

Volumes

Flavors

Images

Projects

Users

Networks

Routers

System Info

Instances

🗑 Terminate Instances

	Project	Host	Name	IP Address	Size	Status	Task	Power State	Actions
☐	admin	osvmware.localdomain	Biz_Talk	192.168.23.8	m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	Active	None	Running	Edit Instance | More ▾
☐	admin	osvmware.localdomain	Oracle_db	192.168.23.7	m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	Active	None	Running	Edit Instance | More ▾
☐	admin	osvmware.localdomain	Puppet_Master	192.168.23.6	m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	Active	None	Running	Edit Instance | More ▾
☐	admin	osvmware.localdomain	web-deploy	192.168.23.5	m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	Active	None	Running	Edit Instance | More ▾
☐	admin	osvmware.localdomain	RHEL6	192.168.23.4	m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	Active	None	Running	Edit Instance | More ▾
☐	admin	osvmware.localdomain	f19-web	192.168.23.2	m1.small | 2GB RAM | 1 VCPU | 20GB Disk	Active	None	Running	Edit Instance | More ▾

Displaying 6 items

Storage and Compute Services
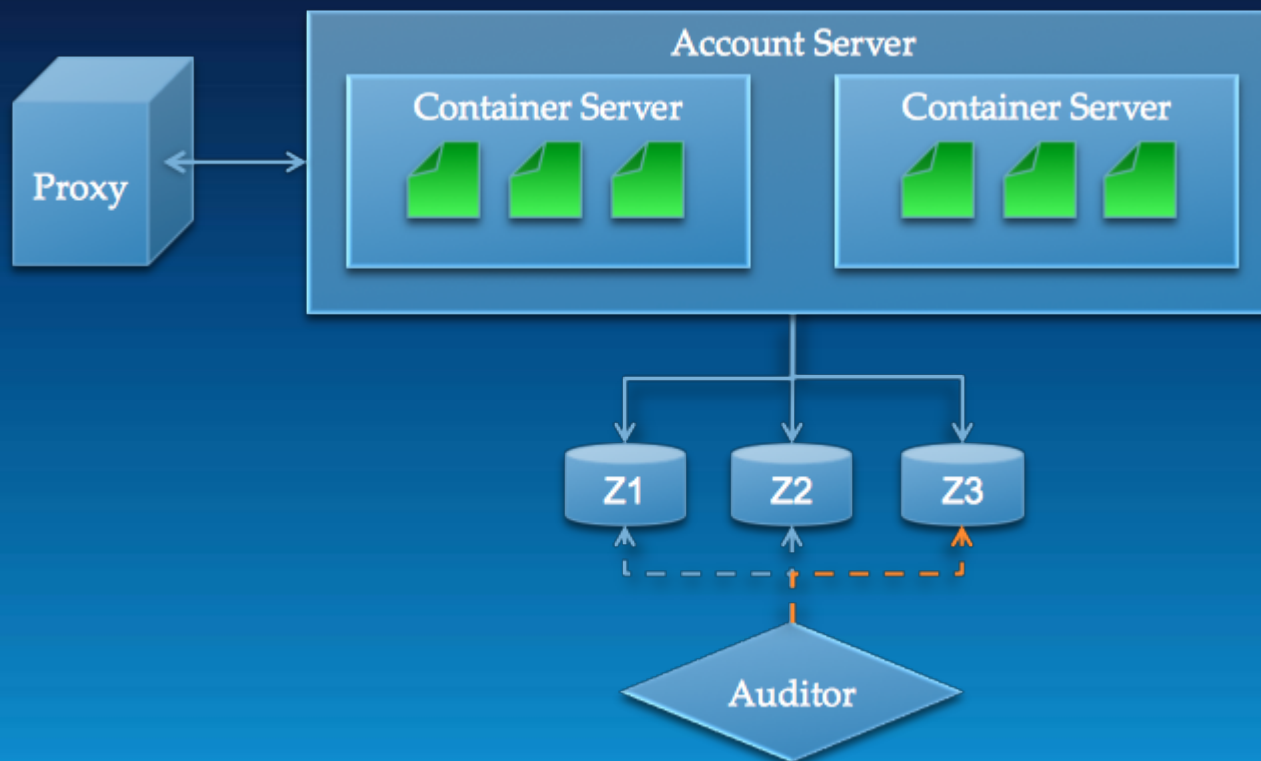
Swift Object Storage

How it works, the structure:

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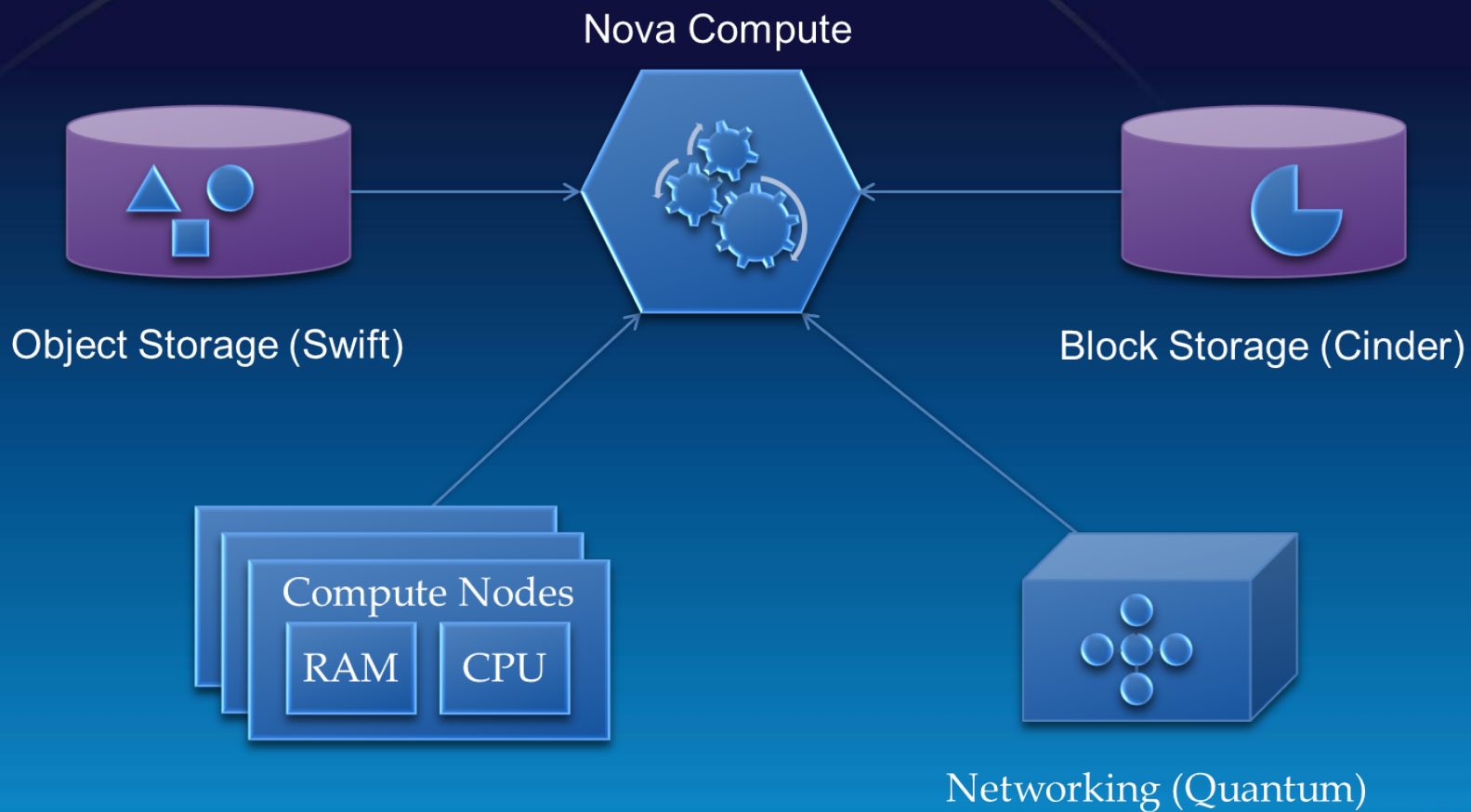# Cinder Block Storage

Nova Compute

Nova Compute

Object Storage (Swift)

Block Storage (Cinder)

Compute Nodes
RAM   CPU

Networking (Quantum)
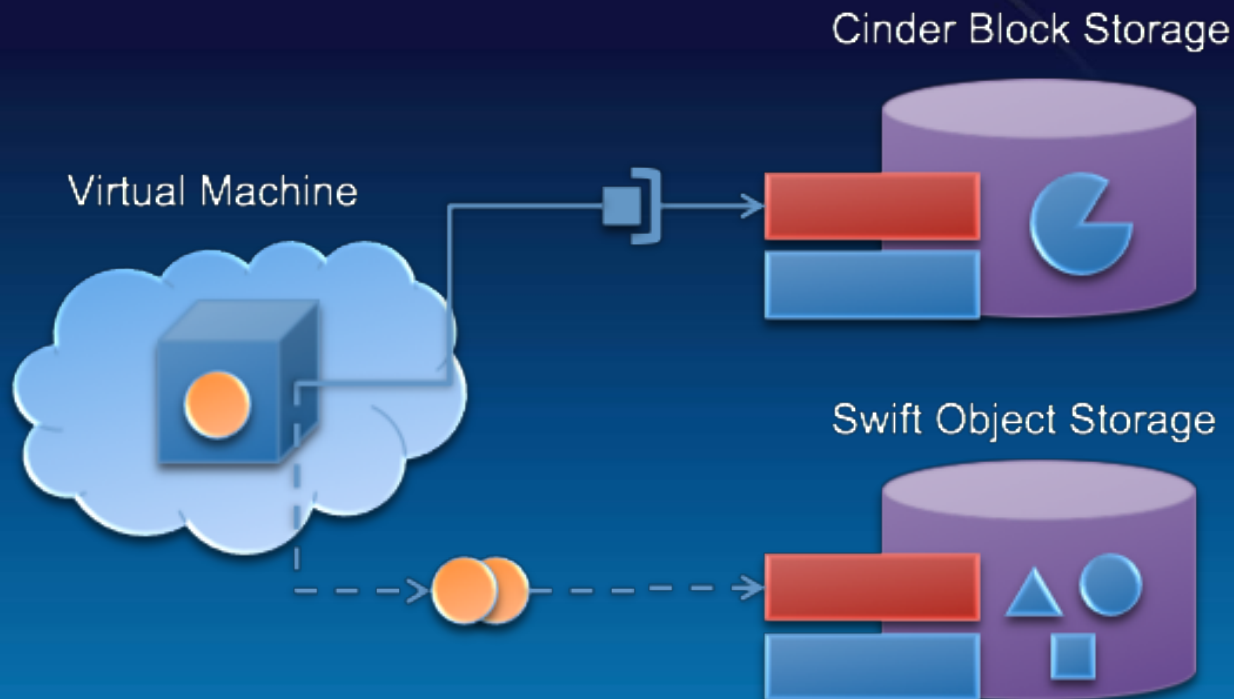
Life of an instance

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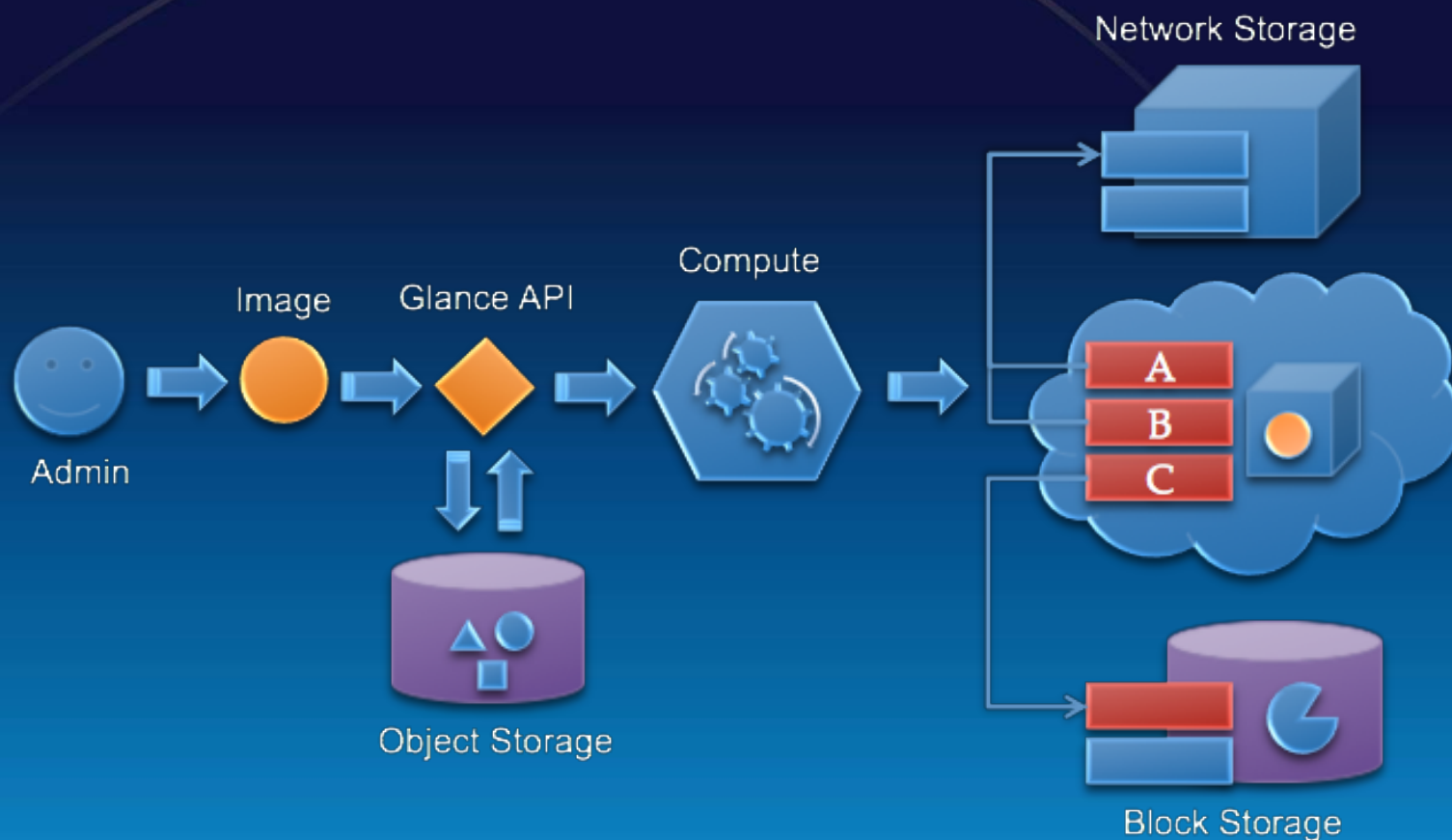
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Process & Results

Methods

Preliminary Tests → Installation → Configuration → Post-Install Tests

Benchmark Script

- SMG2000
- LinPack
- iPerf
- Stream

Results

Preliminary Tests → Installation

Installation → Configuration
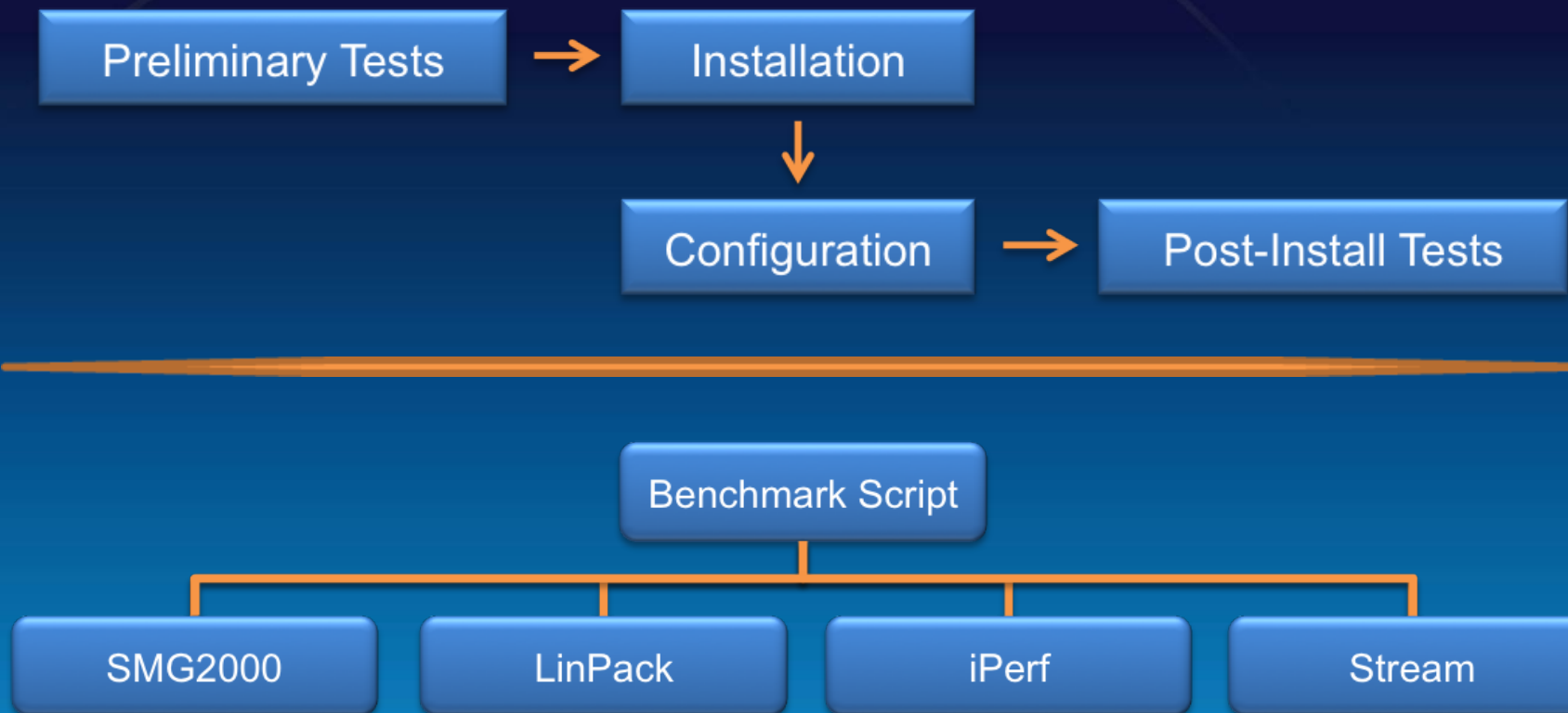
Configuration → Post-Install Tests

Roadblocks

-Hardware

-RDO PackStack/Manual

-Quantum/Nova-Network

-Configuring Scripts

-Database control

-Warewulf

-Authentication

-Languages

Future Work & Conclusion

- Left to do:
    - Post-installation benchmarks
    - Failure Testing & High Availability Testing
    - Overhead performance

- Overall:
    - Installation 👍   Configuration 👎
    - Scalable & cost effective
    - Alternative to VMware
    - Not ready for mainstream

Lessons Learned

- Difficult configuration

- Requires expertise

- Consider OpenStack training

- Fragile product

Acknowledgements

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Thank You!

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Questions?